IN THE CLAIMS

1.   (Canceled)

2.   (Previously Amended) An information relay device connected between a plurality of logical or physical networks for performing an operation for relay of information between said networks, comprising:

a transmit/receive processing unit for receiving a general purpose multicast message from one of said plurality of networks and transmitting a multicast message to at least one of said plurality of networks; and

a protocol conversion processing unit for converting, in the case where the general purpose multicast message received by said transmit/receive processing unit is a multicast protocol message of a certain level, said multicast protocol message of the certain level into a multicast protocol message of another level, wherein

in the case where the general purpose multicast message received by said transmit/receive processing unit is said multicast protocol message of the certain level, said protocol conversion processing unit rewrites a multicast address of said certain level in the received multicast message into a

multicast address of said other level and rewrites a message

of said certain level indicating a transmit request or a

transmit refusal request in the received multicast message

into a message of said other level having a meaning equivalent

to a meaning of the message of said certain level.

3.   (Original)   An information relay device according to

claim 2, further comprising a multicast information memory for

storing a relationship between said multicast address of said

other level and a receiver corresponding thereto, wherein in

the case where the multicast message received by said

transmit/receive processing unit indicates a transmit request

and the updating for entry addition, said protocol conversion

processing unit adds the rewritten multicast address of said

other level in the received multicast message and a

corresponding receiver into said multicast information memory,

and in the case where the multicast message received by said

transmit/receive processing unit indicates a transmit refusal

request and the updating for entry deletion, said protocol

conversion processing means deletes the rewritten multicast

address of said other level layer in the received multicast

message and a corresponding receiver from said multicast

information memory.

4.   (Previously Amended) An information relay device
according to claim 2, wherein in the case where the general
purpose multicast message received by said transmit/receive
processing unit is a multicast protocol message of the third
layer in an OSI reference model, said protocol conversion
processing unit converts said multicast protocol message of
the third layer into a multicast protocol message of the
second layer and said transmit/receive processing unit
transmits said multicast protocol message of the second layer
to at least one of said plurality of networks.

5. (Previously Amended) An information relay device
connected between a plurality of logical or physical networks
for performing an operation for relay of information between
said networks, comprising:

a transmit/receive processing unit for receiving a
general purpose multicast message from one of said plurality
of networks and transmitting a multicast message to at least
one of said plurality of networks; and

a protocol conversion processing unit for converting, in
the case where the general purpose multicast message received
by said transmit/receive processing unit is a multicast

protocol message of a certain level, said multicast protocol

message of the certain level into a multicast protocol message

of another level, wherein

a multicast address memory for storing a multicast

address of said other level, wherein in the case where the

general purpose multicast message received by said

transmit/receive processing unit is said multicast protocol

message of the certain level, said protocol conversion

processing means rewrites a multicast address of said certain

level in the received multicast message into a multicast

address of said other level by use of the corresponding

multicast address in said multicast address memory.

6. (Previously Amended) An information relay device

connected between a plurality of logical or physical networks

for performing an operation for relay of information between

said networks, further comprising:

a transmit/receive processing unit for receiving a

general purpose multicast message from one of said plurality

of networks and transmitting a multicast message to at least

one of said plurality of networks; and

a protocol conversion processing unit for converting, in

the case where the general purpose multicast message received

by said transmit/receive processing unit is a multicast

protocol message of a certain level, said multicast protocol

message of the certain level into a multicast protocol message

of another level, wherein

a multicast address memory for storing a prefix portion

of a multicast address of said other level, wherein in the

case where the general purpose multicast message received by

said transmit/receive processing unit is said multicast

protocol message of the certain level in an OSI reference

model, said protocol conversion processing unit rewrites a

multicast address of said certain level in the received

multicast message into a multicast address of said other level

in the OSI reference model by use of the prefix portion of the

corresponding multicast address in said multicast address

memory.

7. (Original) An information relay device according to

claim 6, further comprising a monitor processing unit for

monitoring a multicast message of said other level on said

networks to store the monitored multicast message of said

other level into said multicast address memory.

8. (Original) An information relay device according to claim 6, wherein in the case where the general purpose multicast message received by said transmit/receive processing unit is a multicast protocol message of the second layer in an OSI reference model, said protocol conversion processing unit converts said multicast protocol message of the second layer into a multicast protocol message of the third layer and said transmit/receive processing unit transmits said multicast protocol message of the third layer to at least one of said plurality of networks.

9. (Canceled)

10. (Previously Amended) An information relay device connected between a plurality of logical or physical networks for performing an operation for relay of information between said networks, comprising:

a transmit/receive processing unit for receiving a general purpose multicast message from one of said plurality of networks and transmitting a multicast message to at least one of said plurality of networks; and

a protocol conversion processing unit for converting, in the case where the general purpose multicast message received

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by said transmit/receive processing unit is a multicast

protocol message of a certain level, said multicast protocol

message of the certain level into a multicast protocol message

of another level, wherein

the general purpose multicast message received by said

transmit/receive processing unit is a multicast protocol

message of the second or third layer in an OSI reference

model, a multicast protocol of said second layer is GMRP (GARP

Multicast Registration Protocol), and a multicast protocol of

said third layer is IGMP (Internet Group Management Protocol),

DVMRP (Distance Vector Multicast Routing Protocol), PIM-SM

(Protocol-Independent Multicast-Sparse Mode), PIM-DM

(Protocol-Independent Multicast-Dense Mode), MOSPF (Multicast

Extension to OSPF), CBT (Core-Based Trees) or MLD (Multicast

Listener Discovery) of IPv6.

11-14.   (Canceled)

15.   (Currently Amended)   An information relay device

coupled to a plurality of logical or physical information

networks for relaying a packet received from one of said

plurality of information networks to another of said plurality

of information networks, comprising:

a plurality of ports coupled to said plurality of

information networks, respectively;

a first processing unit which receives a packet through

one of said plurality of ports and transmits the received

packet to one of said plurality of ports coupled to a

destination one of said plurality of information networks;

a second processing unit which, when said first

processing unit receives through one of said plurality of

ports a multicast protocol message in a second layer of an ~~OSI~~

~~(Open Systems Interconnect)~~ Open System Interconnect (OSI)

reference model, ~~(hereinafter~~ which is referred to as an L2

multicast protocol message,~~)~~ for requesting entering into or

leaving from a multicast service, stores an L2 multicast

address contained in said L2 multicast protocol message and

said one of said plurality of ports receiving said L2

multicast protocol message so as to be associated to each

other in a case where said received L2 multicast protocol

message is a join message, and deletes said L2 multicast

address contained in said L2 multicast protocol message among

L2 multicast addresses stored in advance; and

a conversion unit for converting said L2 multicast

protocol message into a multicast protocol message in a third

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layer of the OSI reference model (hereinafter referred to an
L3 multicast protocol message), wherein

when said first processing unit receives said L2
multicast protocol message, said conversion unit converts said
L2 multicast address contained in said L2 multicast protocol
message into an L3 multicast address, converts a first type
information contained within said L2 multicast protocol
message and representing that said L2 multicast protocol
message is a join message or a leave message into a second
type information representing that said L3 multicast protocol
message is a join message or a leave message, and generates
said L3 multicast protocol message containing said converted
L3 multicast address and said converted second type
information.

16.   (Previously Amended)   An information relay device
according to claim 15, further comprising:

a monitoring processing unit for monitoring whether said
first processing unit has received an L3 multicast packet, and
when it is monitored that said first processing unit has
received the L3 multicast packet, extracting and holding a
prefix address portion of an L3 multicast address contained in
said received L3 multicast packet, wherein

said conversion unit replaces a predetermined upper address portion of said L2 multicast address by said prefix portion held by said monitoring processing unit thereby to convert said L2 multicast address into said L3 multicast address.

17.   (Previously Amended)   An information relay device according to claim 15, wherein said first processing unit includes a relay unit which searches, when an L2 multicast packet is received, whether said second processing unit stores an L2 multicast address contained in said received L2 multicast packet, and, when said second processing unit stores the L2 multicast address contained in said received L2 multicast packet, relays said L2 multicast packet through one of said plurality of ports associated with said searched L2 multicast packet.

18.   (Previously Amended)   An information relay device according to claim 15, wherein a multicast protocol of said second layer is GMRP (GARP Multicast Registration Protocol), and a multicast protocol of said third layer is IGMP (Internet Group Management Protocol), DVMRP (Distance Vector Multicast Routing Protocol), PIM-SM (Protocol-Independent Multicast-

Sparse Mode), PIM-DM (Protocol-Independent Multicast-Dense

Mode), MOSPF (Multicast Extensions to OSPF), CBT (Core-Based

Trees) or MLD (Multicast Listener Discovery) of IPv6.

    19.   (Currently Amended) An information relay device

coupled to a plurality of logical or physical information

networks for relaying a packet received from one of said

plurality of information networks to another of said plurality

of information networks, comprising:

    a plurality of ports coupled to said plurality of

information networks, respectively;

    a first processing unit which receives a packet through

one of said plurality of ports and transmits the received

packet to one of said plurality of ports coupled to a

destination one of said plurality of information networks;

    a conversion unit for converting, when said first

processing unit receives through one of said plurality of

ports a multicast protocol message in a third layer of an OSI

(Open Systems Interconnect) reference model, ~~(hereinafter~~

which is referred to as an L3 multicast protocol message,~~)~~ for

requesting entering into or leaving from a multicast service,

said L3 multicast protocol message into a multicast protocol

message in a second layer of the OSI reference model,

(hereinafter which is referred to as an L2 multicast protocol

message); and

a second processing unit which stores an L2 multicast

address contained in said L2 multicast protocol message and

said one of said plurality of ports receiving said L2

multicast protocol message so as to be associated to each

other in a case where said received L2 multicast protocol

message is a join message, and deletes said L2 multicast

protocol message is a join message, and deletes said L2

multicast address contained in said L2 multicast protocol

message among L2 multicast addresses stored in advance,

wherein

said conversion unit converts an L3 multicast address

contained in said L3 multicast protocol message into an L2

multicast address, converts a first type information contained

within said L3 multicast protocol message and representing

that said L3 multicast protocol message is a join message or a

leave message into a second type information representing that

said L2 multicast protocol message is a join message or a

leave message, and generates said L2 multicast protocol

message containing said converted L2 multicast address and

said converted second type information.

20. (Previously Amended) An information relay device according to claim 19, wherein said conversion unit replaces a first upper address portion of said L3 multicast address by a second upper address portion which address bit number differs from an address bit number of said first upper address portion thereby to convert said L3 multicast address into said L2 multicast address.

21. (Previously Amended) An information relay device according to claim 19, wherein said first processing unit includes a relay unit which searches, when an L2 multicast packet is received, whether said second processing unit stores an L2 multicast address contained in said receive L2 multicast packet, and, when said second processing unit stores the L2 multicast address contained in said received L2 multicast packet, relays said L2 multicast packet through one of said plurality of ports associated with said searched L2 multicast address.

22. (Previously Amended) An information relay device according to claim 19, wherein a multicast protocol of said second layer is GMRP (GARP Multicast Registration Protocol), and a multicast protocol of said third layer is IGMP (Internet

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Group Management Protocol), DVMRP (Distance Vector Multicast

Routing Protocol), PIM-SM (Protocol-Independent Multicast-

Sparse Mode), PIM-DM (Protocol-Independent Multicast-Dense

Mode), MOSPF (Multicast Extensions to OSPF), CBT (Core-Based

Trees) or MLD (Multicast Listener Discovery) of IPv6.